EVN-279

Total Pages: 3 Roll No. ————

S-311

BCA Even Semester Examination 2023

Operating System Organization & Unix

Paper-First (BCA-401)

Time: 3 : 00 Hours Max. Marks: 70

Attempt ant Five From following Each Question Marks

1. (a) What is Process scheduling. **(2 x 7 = 14)**
   (b) What is Dead lock.
   (c) What is operating system?
   (d) Define process management. ·
   (e) What is demand paging.
   (f) Define segmentation.
   (g) What is co-operating process.

2. (a) Classify five different states of a process? Explain all with help of process transition diagram. **(7 x 2 = 14)**
   (b) Distinguish between pipe and signal IPC techniques with help of an example.

3. (a) Create/design a UNIX SHELL program to find greatest of three numbers. **(7 x 2 = 14)**
   (b) What do you mean by disk Scheduling? Evaluate total head movements for SSTF disk scheduling.

4. What are four necessary condition of deadlock. Also describe how these condition can be exploited to prevent deadlock. Calculate the safe sequence for the process using bankers safety algorithm. Given five processes namely p0, p1, p2, p3, p4 and three resources namely A,B,C. **(14 x 1 = 14)**

processes	Allocation			Maximum requirement			Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	7	5	3	3	3	2
P1	2	0	0	3	2	2			
P2	3	0	2	9	0	2			
P3	2	1	1	2	2	2			
P4	0	0	2	4	3	3			

5. (a) Define Paging and Segmentation?

    (7 x 2 =14)

   (a) Explain the architecture of UNIX and also explain 5 UNIX Commands.

6. Short Notes (Any four) **(4 x 3.5 =14)**
   (a) Page Replacement Algorithm.
   (b) Semaphore
   (c) Critical Section
   (d) Tree Structure
   (e) Virtual Memory
   (f) Process Synchronization.

7. What do you mean by virtual memory? Explain FIFO, LRU page replacement algorithms in short. **(14 x 1 = 14)**
   Apply LEAST RECENTLY USED PAGE REPLACEMENT ALGORITHM to find the

total no of page fault for the following reference string using Given : Page frame size = 3

Memory reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1.

8. (a) Explain the concept of virtual memory and how it is obtained by demand paging and segmentation. (7 x 2 = 14)

   (b) What are semaphores? Explain with the help of bounded buffer problem?

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